

Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (previously presented) An image data collection control method for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined, the method comprising:

a step of obtaining periodic motion data indicating a change of a periodic motion with time;

a step of obtaining a time range so that the time resolution is within the desired range on an image data collection condition based on the periodic motion data and a relationship among a time resolution of an image obtained, image data collection conditions and periodic motion ;

a step of controlling an image data collection starting position such that the time range matches the image data collection range ; and

a step of starting the image data collection from the image data collection starting position.

2. (previously presented) The image data collection control method according to claim 1, further comprising:

a projected image obtaining step of obtaining a projected image of the object, and

an image data collection range designating step of designating the image data collection range based on the projected image.

3. (original) The image data collection control method according to claim 2, wherein in the image data collection range designating step, the image data collection range is designated by designating a starting position and an end position of collection of the image data in the projected image.

4. (original) The image data collection control method according to claim 2, wherein the image data collection condition setting step includes, before the image data collection range designating step, a time resolution estimating step of estimating a fluctuation in a time resolution of the image data with time based on the periodic motion data, and

in the image data collection range designating step, a time resolution graph and the projected image are superimposed on each other, the time resolution graph indicating the fluctuation in the time resolution of the image data with time.

5. (original) The image data collection control method according to claim 4, wherein in the image data collection range designating step, the desired time resolution range in the time resolution graph is superimposed so as to correspond to the image data collection range in the projected image.

6. (original) The image data collection control method according to claim 4, wherein in the time resolution graph, at least points ranging from a start point corresponding to a start time of image data collection in the time resolution graph to an end point corresponding to a stop time of image data collection are respectively superimposed on positions ranging from a starting position to an end position of image data collection in the projected image.

7. (original) The image data collection control method according to claim 4, wherein in the image data collection range designating step, input is received for designating or changing at least one of a position of the time resolution graph and a position of a part of the graph, and at least one of the image data collection range and the desired time resolution range is designated or changed based on the input.

8. (original) The image data collection control method according to claim 4, wherein in the image data collection range designating step, a numeric value indicating a position on the projected image is displayed, the position corresponding to at least one of points of the time resolution graph, input is received to change the numeric value, and relative positions of the time resolution graph, at least one of the points of the graph, and the projected image are changed based on the input.

Claim 9 (canceled).

10. (original) The image data collection control method according to claim 4, wherein in the image data collection position control step, the image data collection range and the image data collection position are relatively moved so as to keep a positional relationship between an elapsed time in the time resolution graph and the image data collection range in the projected image, and

the relative movement and the image data collecting step are simultaneously performed.

11. (previously presented) The image data collection control method according to claim 1, further comprising:

a step of determining a suitable change of the periodic motion data such that the image data of the image data collection range has the time resolution within the desired range, and

a step of displaying a change of the periodic motion data with time and the suitable change.

12. (original) The image data collection control method according to claim 11, wherein a combination of the suitable change and a speed of the relative movement is calculated in the image data collection condition setting step, and the image data collection range and a collection position of the image data are relatively moved in the image data collection position control step.

13. (original) The image data collection control method according to claim 11, wherein the periodic motion data obtaining step is repeated until the change of the periodic motion data falls below a predetermined value.

Claims 14-15 (canceled).

16. (previously presented) An image data collection system for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined, the system comprising:

a periodic motion data obtaining means for obtaining periodic motion data indicating a change of a periodic motion with time;

an image data collection condition setting means for obtaining a time range so that the time resolution is within the desired range on an image data collection condition based on the periodic motion data and a relationship among a time resolution of an image obtained, image data collection conditions and periodic motion;

an image data collection position control means for controlling an image data collection starting position such that the time range matches the image data collection range; and

an image data collecting means for starting the image data collection from the image data collection starting position.

17. (original) The image data collection system according to claim 16, wherein the image data collection condition setting means estimates a fluctuation in the time resolution of the image data with time based on the periodic motion data before designating the image data collection range, and

the image data collection condition setting means superimposes a time resolution graph and the projected image, the time resolution graph indicating the fluctuation in the time resolution of the image data.

Claims 18-19 (canceled).

20. (original) The image data collection system according to claim 16, wherein the image data collecting means is an X-ray CT apparatus comprising:

an X-ray source for emitting an X-ray, an X-ray detector which is opposed to the X-ray source with the object being interposed between the X-ray source and the X-ray detector and

detects the X-ray to output X-ray transmission data, a rotating means capable of rotating with the X-ray source and the X-ray detector, a table on which the object is laid, a table controller for controlling a table moving speed for moving the table, an image processing means for generating a tomogram of the object based on the X-ray transmission data, and a display means for displaying the tomogram,

the periodic motion data obtaining means is a heart rate meter for measuring and obtaining a heart rate of the object,

the image data collection condition setting means calculates a combination of a change of the periodic motion data and the table moving speed to obtain the desired time resolution, and

the table controller moves the table according to the table moving speed.

Claim 21 (canceled).

Claim 22 (previously presented). An image data collection system for collecting image data in an image data collection range including a periodically moving part of an object to be examined, the system comprising:

a device for displaying a graph indicating fluctuations in an estimated time resolution of an image obtained on a part of the object with time information with a projected image of the object, in advance of image data collection.